Amendments to the Claims

Please amend the claims as follows:

1-46. (canceled)

47. (new) A method for the electrophoretic separation of particles, particularly of membrane-adherent macromolecules, the method comprising:

applying the particles to be separated on a substrate-supported membrane such that the particles are mobile across a surface of the substrate-supported membrane;

providing an electrical field having a direction that is oriented along the surface across which the particles are mobile; and

performing electrophoresis according to at least one of:

temporarily modifying at least one of the strength and the direction of the electrical field such that a resulting force acts on the particles causing movement among the particles that depends on the length of the particles, and

using, as the substrate-supported membrane, a substrate-supported membrane having a structured surface, wherein the surface of the substrate-supported membrane is structured to provide a force acting on the particles causing movement among the particles that depends on the length of the particles.

48. (new) A method according to claim 47, wherein the substrate-supported membrane is a fluid lipid membrane, particularly comprising at least one of the lipids activated by PEG and DAC-Chol lipids.

49. (new) A method according to claim 48, wherein the fluid lipid membrane is a cationic fluid lipid membrane.

50. (new) A method according to claim 48, wherein the fluid lipid membrane includes amphiphilic macromolecules.

51. (new) A method according to claim 48, wherein the fluid lipid membrane includes bilayers of charged lipids.

52. (new) A method according to claim 47, wherein the electrical field is a pulsed electrical field.

53. (new) A method according to claim 47, wherein the electrical field is an alternating field on which a time constant field is superimposed.

54. (new) A method according to claim 53, wherein the alternating field and the time constant field are superimposed in a crosswise manner.

55. (new) A method according to claim 47, wherein the substrate-supported membrane includes a substrate having a surface including ribs, supporting the membrane.

56. (new) A method according to claim 55, wherein the substrate exhibits a periodicity ranging from 2 nm to 200 nm.

57. (new) A method according to claim 55, wherein the ribs have a height in the range of 1 nm to 10 nm.

58. (new) A method according to claim 55, wherein the electrical field is a time constant field having a direction that is substantially parallel to the ribs.

59. (new) A method according to claim 47, wherein said movement is a rotation.

60. (new) A method according to claim 47, wherein:

the substrate-supported membrane includes an exclusion area in which the particles are not mobile; and

the method further comprises collecting the particles at said exclusion area upon providing the electrical field, prior to performing the electrophoresis.

61. (new) A method according to claim 60, wherein:

the substrate-supported membrane is a fluid lipid membrane, particularly comprising at least one of the lipids activated by PEG and DAC-Chol lipids; and

the exclusion area is a non-fluid area of the fluid lipid membrane.

62. (new) A method of observing an electrophoretic separation, comprising:

applying the particles to be separated on a substrate-supported membrane such that the particles are mobile across a surface of the substrate-supported membrane;

providing an electrical field having a direction that is oriented along the surface across which the particles are mobile;

performing electrophoresis according to at least one of

temporarily modifying at least one of the strength and the direction of the electrical field such that a resulting force acts on the particles causing movement among the particles that depends on the length of the particles, and

using, as the substrate-supported membrane, a substrate-supported membrane having a structured surface, wherein the surface of the substrate-supported membrane is structured to provide a force acting on the particles causing movement among the particles that depends on the length of the particles;

recording digitized image data of the electrophoretic movement; and

evaluating the recorded image data using a computer.

63. (new) A method according to claim 47, wherein the particles to be separated include at least one of DNA, RNA, DNA-oligomers, RNA-oligomers, and proteins.

64. (new) A method according to claim 47, further comprising providing a pH gradient, wherein the particles migrate in the pH gradient.

65. (new) A method according to claim 64, wherein the pH gradient is provided parallel to the electrical field.

66. (new) A method according to claim 64, wherein the pH gradient is provided substantially perpendicular to the electrical field.

67. (new) A substrate-supported membrane, comprising:

a substrate and a fluid lipid membrane, wherein the fluid lipid membrane is dried up.

68. (new) A substrate-supported membrane according to claim 67, wherein the fluid lipid membrane includes cationic lipids.

69. (new) A substrate-supported membrane according to claim 67, wherein the fluid lipid membrane includes amphiphilic macromolecules.

70. (new) A substrate-supported membrane according to claim 67, wherein the fluid lipid membrane includes bilayers of charged lipids.

71. (new) A substrate-supported membrane according to claim 67, wherein the fluid lipid membrane includes at least one non-fluid area.

72. (new) A substrate-supported membrane according to claim 67, wherein the substrate includes an optically transparent material.

73. (new) A substrate-supported membrane according to claim 72, wherein the optically transparent material includes plastic.

74. (new) A substrate-supported membrane according to claim 73, wherein the plastic includes at least one of PC, PMMA, PS, PE, and plastic formed of cyclic olefins.

75. (new) A substrate-supported membrane according to claim 72, wherein the optically transparent material includes glass.

76. (new) A microchannel electrophoresis chamber, comprising:

at least one channel having a bottom surface including a substrate-supported membrane according to claim 67; and

an electrode assembly.

77. (new) A microchannel electrophoresis chamber according to claim 76, wherein each channel has a width ranging from 1 μm to 10 mm.

78. (new) A microchannel electrophoresis chamber according to claim 76, wherein each channel has a depth ranging from 10 nm to 20 μm.

79. (new) A microchannel electrophoresis chamber according to claim 76, wherein the at least one channel is a plurality of channels arranged as a two-dimensional matrix.

80. (new) A microchannel electrophoresis chamber according to claim 76, wherein the electrode assembly includes an electrode disposed at each longitudinal end of each said channel.

81. (new) A microchannel electrophoresis chamber according to claim 76, wherein the electrode assembly includes an electrode extending longitudinally in the direction of the channel at each side of each channel.